Multi-dimensional Pain Assessment and Psychosocial Interventions

MiCCSI

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Disclosures

- Consultant to Community Health Focus Inc.
- President of the American Pain Society
- Chair of Steering Committee reviewing grants for APS sponsored by Pfizer
- Funded for research by NIH

There will be no use of off-label medications in this presentation.
Shared Neurotransmitters Explain

- The complexity of chronic pain presentation

- **Sleep, Pain, Affect, Cognition, Energy**

- New targets for treating pain perception

Multi-Dimensional Pain Assessment

- Documents targetable elements of chronic pain perception
- Monitors chronic pain perception over time
- Helps phenotype pain for research
How do you assess a pain perception?
Traditional Pain Assessment

Pain
- Intensity
- Location, Quality
- Distribution
- Temporality

Adapted from Williams, DA. Curr Opin. Urol. 2013;23(6) 554-9
Intensity

Brief Pain Inventory

## EMA Pain

### Example: Pain Diary

### MONITORING PAIN DIARY

**Instructions:**
1. Keep a record of any pain you experience during any of the following periods with a 7 day diary.
2. Record how intense your pain was by rating it on a scale of 1 to 10 (1=not very painful to 10=highly painful).
3. Record what you were doing or the situation you were in when you experienced the pain.
4. Record your thoughts at the time of experiencing the pain.

This will help you to develop more awareness about your experiences of physical pain to help you identify strategies and techniques to help manage pain.

<table>
<thead>
<tr>
<th>DAY</th>
<th>Brief description of type of pain</th>
<th>RATE 1-10</th>
<th>Situation/What you were doing</th>
<th>What you were thinking at the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td></td>
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<tr>
<td>Tuesday</td>
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<tr>
<td>Sunday</td>
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</tbody>
</table>
Domains of Pain Assessment

Adapted from Williams, DA. Curr Opin. Urol. 2013;23(6) 554-9
Sleep

- Sleep Disturbances
  - PROMIS\(^1\)
  - MOS\(^2\)
  - PSQI\(^3\)
- Sleep-related Impairment
  - PROMIS\(^1\)

Focal vs Wide-Spread Pain

- Body Maps
- Assess for local Vs. Wide-spread pain
- In IC, only 19% focal

Fibromyalgia-ness:


Fibromyalgia Symptoms (Modified ACR 2010 Fibromyalgia Diagnostic Criteria)

1. Please indicate below if you have had pain or tenderness over the past 7 days in each of the areas listed below. Check the boxes in the diagram below for each area in which you have had pain or tenderness. Be sure to mark right and left sides separately.

2. Using the following scale, indicate for each item your severity over the past week by checking the appropriate box.
   - No problem
   - Slight or mild problems: generally mild or intermittent
   - Moderate: considerable problems; often present and/or at a moderate level
   - Severe: continuous, life-disturbing problems

<table>
<thead>
<tr>
<th>Item</th>
<th>No problem</th>
<th>Slight or mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Fatigue</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>b. Trouble thinking or remembering</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Waking up tired (unrefreshed)</td>
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</tbody>
</table>

3. During the past 6 months have you had any of the following symptoms?
   - a. Pain or cramps in lower abdomen
   - b. Depression
   - c. Headache

4. Have the symptoms in questions 2-3 and pain been present at a similar level for at least 3 months?
   - No □ Yes □

5. Do you have a disorder that would otherwise explain the pain?
   - No □ Yes □
Affect and Chronic Pain

**IASP Definition of Pain:**
An unpleasant *sensory and emotional* experience associated with actual or potential tissue damage or described in terms of such damage

**Affective Vulnerability:**
Highly predictive of first onset of chronic pain (e.g., TMD).

**Neuroimaging Findings:**
Compared to acute pain, chronic pain appears more like an emotional event than a sensory event.

Negative Affect

- Depression/Dysphoria
  - CES-D<sup>1</sup>
  - PHQ-9<sup>2</sup>
  - PROMIS<sup>3</sup>

- Anxiety
  - STAI<sup>4</sup>
  - GAD-7<sup>5</sup>
  - PROMIS<sup>3</sup>

- Anger
  - STAXI<sup>6</sup>
  - PROMIS<sup>3</sup>

**Negative Affect:**
Positive Affect / Resilience

- Positive/Negative Affect
  - PANAS\textsuperscript{1}
- Affect Balance\textsuperscript{2}
- Hardiness
- Grit
  - Short Grit Scale\textsuperscript{3,4}
- Optimism
- Determination/courage

- Satisfaction with life
  - SWL\textsuperscript{5}
- Benefit Finding
- Gratitude
- Forgiveness
- Subjective Well-being
  - SWBS\textsuperscript{6}
  - PROMIS Affect/Well-being\textsuperscript{7}
- Sense of Coherence

**Dyscognition**
- Perceived Problems
  - MASQ
  - MISCI

**Fatigue**
- Multidimensional Fatigue
  - MFI
  - PROMIS

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Domains of Pain Assessment

Historical Experiences

SPACE

- Demographics
- Trauma
- Medical History
- Family History
- Personality

Pain

Adapted from Williams, DA. Curr Opin. Urol. 2013;23(6) 554-9
Medical History
• Demographics
• Co-morbid medical conditions
• Current Treatments
• Medical History
• Family History

Trauma/Stress
• Trauma
  • CTES/RTES^7
• Stress
  • PSS^8

Personality
• 5 Factor Model
  • Neuroticism
  • Extroversion
  • Openness
  • Conscientiousness
  • Agreeableness
• IPIP^9
• TIPIT^10


Domains of Pain Assessment

- Historical Experiences
  - Beliefs
  - Catastrophizing
- Cognitive Responses
  - Expectancies
  - Self-Efficacy
  - Locus of Control
- Coping Resources
- SPACE
  - Pain

Adapted from Williams, DA. Curr Opin. Urol. 2013;23(6) 554-9
**Pain Beliefs**

- Multi-component
  - SOPA
  - PBPI
  - BBCA
- Locus of Control
  - BPCQ

**Coping Resources**

- Coping Strategies
  - CSQ
  - CPCI
- Catastrophizing
  - PCS
- Self-Efficacy
  - PSE

**Expectancies**

- Treatment Expectancy and credibility
  - TEC

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**Expectancies:** 9Smeets RJ, et al., Treatment expectancy and credibility are associated with the outcome of both physical and cognitive-behavioral treatment in chronic low back pain. The Clinical journal of pain. 2008;24(4):305-15.
Domains of Pain Assessment

Adapted from Williams, DA. Curr Opin. Urol. 2013;23(6) 554-9
Functioning

- Multidimensional Functioning
  - SF-36
  - WHO-DAS 2.0
- Pain Interference
  - BPI (interference)
- Disability
  - PDI

Pain Behaviors

- PROMIS

Fear Avoidance

- TSK


Substance Use

- Tobacco
  - 5FTQ
- Alcohol
  - 6CAGE
  - 7AUDIT
- Opiates
  - 8ORT
  - 9COWS
- Illicit Drugs
  - 10DAST

Substance Usage:  
8Webster, LR & Webster, R (2005), Pain Med 6(6):432.  
Domains of Pain Assessment

- Historical Experiences
- Cognitive Response
- Behavioral Response
- Environmental Influences

- Pain
- SPACE
- Culture
- Medical
- Work
- Family
- Friends
- Social

Adapted from Williams, DA. Curr Opin. Urol. 2013;23(6) 554-9
**Social**
- Multicomponent Social Functioning
  - WHYMPI\(^1\)
- Social Enfranchisement
  - PE\(^2\)

**Family**
- Dyadic Adjustment
  - DAS\(^3\)

**Work**
- Work Productivity/Impairment
  - WPAI\(^4\)

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**Family:** 3Spanier GB. The measurement of marital quality. J Sex Marital Ther

Domains of Pain Assessment

- Pain
- Intensity
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Historical Experiences

Cognitive Response

Behavioral Response

Environmental Influences

Adapted from Williams, DA. Curr Opin Urol. 2013;23(6) 554-9
Do we need to assess everything?
How do you use assessments to treat a pain perception?
Persistent Pain Complaint

History/Physical

Red Flags
Specialist Referrals

Diagnosis

Investigations

**Diagnostic** – 65 y/o female, retired, R-KOA, possible FM, Pain 7/10

Adapted from Macfarlane et al. Ann Rheum Dis, 2017;76:318-328; Lee, et al., BJA 2014; 112:16-24; Peterson et al, VA ESP Project #09-199, 2017
Persistent Pain Complaint

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Multi-Dimensional Needs Assessment, Improvement Goals, & Treatment Planning

**Diagnostic** – 65 y/o female, retired, R-KOA, possible FM, Pain 7/10

Sleep: poor, non-restorative
Pain: wide-spread, FM-ness=11 (subclinical FM)
Affect: Anxiety>Depression
Cognition: complains of memory and concentration problems
Energy: fatigue early in day and late at night
Childhood Trauma: sister died in house fire
Beliefs: Her pain is God’s punishment for failing to save sister’s life
Functioning: both mental and physical functioning have become worse
Social: Husband is 8 years older than her, misses companion for activities

Adapted from Macfarlane et al. Ann Rheum Dis, 2017;76:318-328; Lee, et al., BJA 2014; 112:16-24; Peterson et al, VA ESP Project #09-199, 2017
Targets

- Self-Management
  - Behavioral Sleep Strategies
  - Pacing
  - Social

- Physical Therapy
  - Functional status

- Cognitive Behavioral Therapy
  - Anxiety
  - Beliefs
Pain Care Pathway

Persistent Pain Complaint

History/Physical

Red Flags
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Diagnosis

Investigations

Multi-Dimensional Needs Assessment, Improvement Goals, & Treatment Planning

Education

Self-Management

if insufficient effect

Multi-Component CBT
• Mood, Function
• Coping, sleep, pain

Pharmacotherapy
• Severe Pain
• Sleep

Fitness
• Function
• Pain

Other Therapies
• Massage
• Hydrotherapy

Adapted from Macfarlane et al. Ann Rheum Dis, 2017;76:318-328; Lee, et al., BJA 2014; 112:16-24; Peterson et al, VA ESP Project #09-199, 2017
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Education

Self-Management

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- Mood, Function
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- Severe Pain
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Fitness
- Function
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Other Therapies
- Massage
- Hydrotherapy

Monitor Symptomatic Change

Not improving
- Repeat Needs assessment

Improving
- Regular Review /Pt. centric care

Self-Management is Supported by CBT, Fitness, and Education
How to ERASE S.P.A.C.E.

Emotions
Reflections
Actions
Sleep
Environment

Sleep, Pain, Affect, Cognitive changes, Energy deficits
EMOTIONS

E.

Pleasant Activity Scheduling

EAET

REFLECTIONS

R.

Relaxation

Reframing

Fog reduction

ACTIONS

A.

Exercise

Pacing

Life Style Activity

Wellness

Problem solving/Goal Setting

Resilience

SLEEP

S.

Behavioral Sleep Strategies

Environment

E.

Interpersonal Communication

Nature/Nurture

Cooper, Aquino, Williams  CJP
Emotions

Altering pain perception through Emotions
Approaches to Resolve Negative Affect Influencing Chronic Pain

- Emotional Awareness and Expression Therapy (EAET)
- Pleasant Activity Scheduling
- Traditional Psychotherapy
Emotional Awareness and Expression Therapy (EAET)

- Based on assumption that pain is influenced by unresolved emotional conflict/trauma
- Therapy seeks to resolve affective perturbation
- Effects similar to CBT with some profound remissions of pain
- May be good fit for individuals with trauma history

Pleasant Activity Scheduling
Pleasant Activity Scheduling

- Initiates movement through pleasant events
- Pleasant affect buffers pain
- Scheduling is better than random occurrences
  - More likely to happen
  - More predictable, less flare-ups
Reflections

Using Cognition to alter pain perceptions
Reframing

Perspective...
Novel learning

Novel skills

New activities
- Time to figure out each step
- Unknown outcomes
- Fatiguing
- Awkward
- No easy flow

Novel acquaintances
Automatic Thinking

Familiar Activity
- Flows easily
- Mindless
- Efficient
- Multi-task
- Lower stress

But...Can close off need for novelty, and creativity
- Closed minded
If Novel Learning is Negative, Automatic Thinking becomes Negative

Acute pain is awful
- Feels better with rest, avoiding tasks, withdraw socially
- Prepares self for the worst
- Catastrophizing – produces negative emotions

When pain becomes chronic
- Tendency to retain acute pain thinking
- Don’t revisit assumptions about pain
- Physiological toll - deconditioning
- Need to focus on challenging old assumptions
<table>
<thead>
<tr>
<th>STEP 1</th>
<th>STEP 2</th>
<th>STEP 3</th>
<th>STEP 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identify the situation that causes negative thoughts</strong></td>
<td><strong>Describe your negative thoughts</strong></td>
<td><strong>Describe your emotions</strong></td>
<td><strong>Reframe your thoughts</strong></td>
</tr>
</tbody>
</table>
| I haven’t done the laundry in weeks. It just hurts too much. | • I’m a terrible wife  
• I can’t do anything anymore  
• My husband will be angry with me | • Guilt  
• Worthlessness  
• Anxiety | • Having fibromyalgia is not my fault, and it does not mean I am a bad wife  
• There are many things I can do without help, but laundry is not one of them  
• If I explain to my husband about my pain and ask for his help, he’ll understand |
Mindfulness Meditation

- State of consciousness where the focus is on attention, awareness, and moment-by-moment experience
- Attitude of curiosity, openness, and acceptance
- Decreased automatic thinking, and analytical self-referential rumination

The Relaxation Response

PMR

YOGA

Visual Imagery

Meditation

Biofeedback
Using **Behavior** to alter pain perceptions and provide a foundation of wellness
Multiple reviews and meta-analyses, and professional society guidelines recommend exercise and physical activity for the treatment of chronic pain and fatigue.

- Increase Fitness
- Increase Function
“Many studies show that exercise will help your pain and fatigue. I want you to start exercising.”
OK!!
More common responses

- Silence
- The are “you insane” stare
- Resistance
Exercise needs to start with a patient-centric conversation

- Merits
- Barriers
- Motivation
- Rewards
- How to get started
20 Exercise Benefits

1. Reduces body fat
2. Increases lifespan
3. Oxygenates body
4. Strengthens muscles
5. Manages chronic pain
6. Wards off viruses
7. Reduces diabetes risk
8. Strengthens heart
9. Clears arteries
10. Boosts mood
11. Maintains mobility
12. Improves memory
13. Improves coordination
14. Strengthens bones
15. Improves complexion
16. Detoxifies body
17. Decreases stress
18. Boosts immune system
19. Lowers blood pressure
20. Reduces cancer risk

www.facebook.com/montereybayholistic
Barriers

I’m in too much pain to exercise

Skinny people will laugh at me.

I’m too busy to exercise

I don’t live where I can exercise

I can’t afford a gym membership

I don’t have any workout clothes

It’s not fun

I hate sweat.

I have kids to drive around

No one will exercise with me.
Problem Solving, Motivation, and Rewards

Some Days It’s Hard To Find Motivation

Some Days Motivation Finds You!!

EXERCISING WOULD BE SO MUCH MORE REWARDING IF CALORIES SCREAMED WHILE YOU BURNED THEM
Types of Physical Activity

- **Aerobic training**
  - at moderate intensity can improve pain, fatigue, depressed mood and physical limitations

- **Strength training**
  - may decrease pain, and depression, and improve overall well-being

- **Movement therapies**
  - Tai Chi – improves balance, well-being, fitness and pain
  - Yoga – improves pain functioning, HRQOL

Activity trackers – Fitbit ($100) and pedometers can be found for as little as $10.

Every day beat the day before by 50 steps.

Healthy: 10,000 steps a day
- (18 – 1,900 steps in a mile)
Lifestyle Physical Activity
How should I do it?

- Follow the F.I.T.T. principle:
  - **Frequency** – Number of days per week. (e.g., 3x per wk)
  - **Intensity** – How hard the activity feels to you.
  - **Time** – The total time you do physical activity. (e.g. 30min)
  - **Type** – The kind of physical activity you do.

- **RPE**
  - 4 Maximal effort/strain
  - 3 Quite hard
  - 2 Somewhat hard
  - 1 Quite easy
  - 0 Minimal effort/strain
Pacing for Energy Efficiency
Beware Pain & Fatigue Cycle

Over Activity

Diminished Productivity

Increased Pain & Fatigue

Prolonged Rest
Behavioral Activation Skills

Time-Based Pacing

Activity-Rest-Activity-Rest

ACTION
Step 1
Identify the Problem

Step 2
Collect Information
What do I know about this problem?
Where can I get more information?

Step 3
Brainstorm Solutions

Step 4
Evaluate Brainstorming Ideas
Consider each idea from Step 3 in terms of its being realistic and favorable

Step 5
Develop Workable Plan
Plan:
Barriers:
Choices:
Put your plan into action
Barriers too great (go back to Step 3)
Multiple problems (go back to Step 1)

Step 6
Review and Evaluate
What happened?

The Problem Solving Cycle Worksheet

Choose one solution to try:
Goal Setting

Poor Goal: Make a bunch of money
Strategic Goal: Make $50 this week
Tactical Goal: Sell my old suits to consignment store on Thursday
Nutrition
Education
Educational Resources

- Self-help books on Chronic Pain
  - Amazon lists 100 (1/2018)
- Subscription magazines
- Patient organizations

Images of various organizations and publications related to chronic pain and fibromyalgia are also included.
Sleep

Altering Pain via Sleep
One night’s loss of sleep...

- Impacts the next 2 days
  - Physical ability
    - Coordination
    - Dexterity
    - Energy
  - Mental ability
    - Emotional stability
    - Memory
    - Concentration

### Sleep Hygiene Skills

<table>
<thead>
<tr>
<th><strong>Timing</strong></th>
<th><strong>Ingestion</strong></th>
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<tbody>
<tr>
<td>Regular bed time/wake time</td>
<td>Decrease nicotine</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Sleep Behavior</strong></th>
<th><strong>Decrease Caffeine</strong></th>
<th><strong>Alcohol interferes with sleep</strong></th>
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</thead>
<tbody>
<tr>
<td>Get in bed only when sleepy</td>
<td>Light snack is recommended</td>
<td></td>
</tr>
<tr>
<td>Use bed for sleep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get up after 15’ if no sleep</td>
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<thead>
<tr>
<th><strong>Thermal Tips</strong></th>
<th><strong>Mental Control</strong></th>
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<tbody>
<tr>
<td>Decline in core temp signals sleep</td>
<td>Effort will not produce sleep</td>
</tr>
<tr>
<td>Exercise, warm bath before bed</td>
<td>Avoid mental stimulation</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th><strong>Environment</strong></th>
<th><strong>Seek mental quiescence</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Steady room temperature</td>
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<tr>
<td>Keep room dark</td>
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</tbody>
</table>

Environment

Using the Environment to alter pain perceptions and provide a foundation of wellness
Social Challenges

Dr. - Patient
- Awkward
- Tense
- Confrontational

Family
- Withdrawal
- Impatience
- Shifting roles
- Dependence
- Loss
- Loss of Self-esteem

Friends
- Caring at first
- Withdrawal
- Dependent
- Loss

Employer and co-workers
- Others cover
- Competence?
- Accommodate?
- Loss of role
- Lost Self-esteem
- Lost Motivation
- Lost social position
Nature / Nurture

Genetic and Environmental influences on pain perception
Web-based self-management “FibroGuide”

http://fibroguide.med.umich.edu/
Pain Care Pathway

Persistent Pain Complaint

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